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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/353,887	07/15/99	EDWARDS S	1247/A38

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EXAMINER	
CHUNG, D	
ART UNIT	**PAPER NUMBER**
2672	7

DATE MAILED: 04/11/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/353,887	EDWARDS, STEPHEN W.	
	Examiner	Art Unit	
	Daniel J Chung	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)
16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
18) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

The IDS filed 1-17-2000 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. Specifically, all U.S Documents have been considered, but copies of the Foreign Patent Documents and other documents have apparently not been provided, and thus the information referred to therein have not been considered. Applicant must provide copies of these documents if there are to be considered as to the merits.

Drawings

The drawings are objected to by the Draftperson as shown in the enclosed form PTO-948. Corrected drawings are required to be submitted.

Specification

Please review the application and correct all informalities.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,2,5-7,9-13 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko (5,764,237).

Regarding claim 1, Kaneko discloses that the claimed feature of a graphics accelerator for processing a graphical image, (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+) the graphics accelerator comprising:

A texture buffer (texture memory; 5) for storing texture maps and data relating to the texture maps stored in the texture buffer (5) (See Abstract, Fig 1, col 2 line 35-col 4 line 39, col 5 line 8-32)

A texture processor (texture mapping unit; 1) that performs texturing operations on the graphical image (See Abstract, Fig 1, col 2 line 35-col 4 line 39, col 5 line 8-32)

The texture processor (1) including a fetching engine (selector; 15) that retrieves texture packets (texture data), each texture packet being stored in the texture buffer (5) and being associated with a texture map, each texture packet including data relating to the location (identified by texture address) of its associated texture map in the texture buffer (5) (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Kaneko does not specifically discloses that "texture buffer", as claimed by Applicant. However, a texture buffer is an obvious embodiment of the notoriously well known texture memory. According to the on-line computer dictionary, buffer is defined as "a region of memory reserved for use as an intermediate repository in which data is temporarily held while waiting to be transferred between two locations, as between an application's data area and an input/output device". From its definition of "buffer", it is reasonable to interpret the texture buffer as a part/same of texture memory. Therefore, it would have been obvious to one skilled in the art to "texture buffer" into the teaching of Kaneko.

Regarding claim 2, Kaneko discloses that each texture packet is associated with a texture map that is different than the texture maps associated with any other texture packet in the texture buffer. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Regarding claim 5, Kaneko discloses that an input for receiving a texture message indicating that a texture map is to be utilized by the texture processor, the fetching engine responsively retrieving selected texture packets from the texture buffer in response to receipt of the texture message. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Regarding claim 6, Kaneko discloses that the texture processor includes a parsing engine for parsing a fetched texture packet and determining information relating to the texture map associated with the fetched texture packet. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Regarding claim 7, Kaneko discloses that the information relates to the location in the texture buffer of the texture map associated with the fetched texture packet. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Regarding claim 9, Kaneko discloses that the claimed feature of a method of applying texture to a graphical image, (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+) the method comprising:

Locating a texture packet (texture data) identifying the location (texture address) of a texture map in a memory device (texture memory; 5) (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32)

Parsing the texture packet to determine the location of the texture map (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32)

Retrieving, based upon the determined location, the texture map from the memory device (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32)

Applying the texture map to the graphical image. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32)

Regarding claim 10, Kaneko discloses that the texture packet is located by accessing a record identifying the location of the texture packet. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Regarding claim 11, Kaneko discloses that the memory device is texture memory. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Regarding claim 12, Kaneko discloses that the texture packet is stored in the memory device. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Regarding claim 13, Kaneko discloses that reconstructing the texture map after it is retrieved from the memory device. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Regarding claims 15-19, claims 15-19 are similar in scope to the claims 9-13, and thus the rejections to claims 9-13 hereinabove are also applicable to claims 15-19.

Claims 3,4,8,14,20-25 and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko as applied to claim 1 above, and further in view of Gossett (6,104,415).

Regarding claim 3, Kaneko discloses that each texture packet includes data relating to the dimensional type of its associated texture map. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Kaneko does not specifically disclose that texture data is relating to the dimensional type of its texture map. However, Gossett teaches that separated texturing modes based on dimensional type in texture mapping. (See col 2 line 28-41, col 2 line 66-col 3 line 30, col 10 line 55-col 11 line 59, col 13 line 35-63) The motivation would have been to operate texture mapping processing efficiently. The texture mapping processing can be improved by sorting the size of texture data (i.e. three dimensional texture data usually require large capacity processor comparing to one-dimensional texture data) Therefore, it would have been obvious to one skilled in the art to separate the texture data by its dimensional type.

Regarding claim 4, refer to the discussion for the claim 3 hereinabove, Gossett discloses that the dimensional type of each texture map is one of a one dimensional texture map, a two dimensional texture map, and a three-dimensional texture map. (See col 2 line 28-41, col 2 line 66-col 3 line 30, col 10 line 55-col 11 line 59, col 13 line 35-63)

Regarding claim 8, refer to the discussion for the claim 3 hereinabove, Kaneko discloses that the information relates to the number of dimensions of the texture map associated with the fetched texture packet. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Regarding claim 14, refer to the discussion for the claim 3 hereinabove, Kaneko discloses that the texture packet includes data relating to the dimensional type of the texture map, the texture map being reconstructed by parsing the texture packet to determine the dimensional type of the texture map, the texture map being reconstructed based upon the determined dimensional type of the texture map. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Regarding claim 20, claim 20 is similar in scope to the claim 14, and thus the rejection to claim 14 hereinabove is also applicable to claim 20.

Regarding claim 21, claim 21 is similar in scope to the claim 1, and thus the rejection to claim 1 hereinabove is also applicable to claim 21.

In addition, Kaneko fails to teach that texture data is relating to the dimensional type of its texture map. However, Gossett teaches that separated texturing modes based on dimensional type in texture mapping. (See col 2 line 28-41, col 2 line 66-col 3 line 30, col 10 line 55-col 11 line 59, col 13 line 35-63) The motivation would have been to operate texture mapping processing efficiently. The texture mapping processing can be improved by sorting the size of texture data (i.e. three dimensional texture data usually require large capacity processor comparing to one-dimensional texture data) Therefore, it would have been obvious to one skilled in the art to separate the texture data by its dimensional type.

Regarding claims 22-23, claims 22-23 are similar in scope to the claims 1-2, and thus the rejections to claims 1-2 hereinabove are also applicable to claims 22-23.

Regarding claims 24-25, claims 24-25 are similar in scope to the claims 5-6, and thus the rejections to claims 5-6 hereinabove are also applicable to claims 24-25.

Regarding claim 35, refer to the discussion for the claim 3 hereinabove, Kaneko discloses that the claimed feature of a data structure for storing data relating to a texture map, the texture map having an associated dimension and being stored at a given location in a memory device, the apparatus comprising:

A location field identifying the given location in the memory device (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

A dimension field identifying the dimension of the texture map (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Regarding claim 36, Kaneko discloses that the texture map comprises a set of mipmaps, further wherein the location field includes a plurality of subfields, each subfield identifying the location of one mipmap in the set of mipmaps. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Regarding claim 37, Kaneko discloses that the texture map spans a plurality of addresses in the memory device, the location field identifying the plurality of addresses. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Regarding claim 38, Kaneko discloses that the data structure is stored in the memory device, the memory device being texture memory. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+)

Claims 26-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko in view of Gossett, and further in view of Chimoto (5,550,961).

Regarding claim 26, Kaneko discloses that the claimed feature of a method of storing a texture map in linear texture memory of a graphics accelerator, (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32, col 6 line 6-56, col 11 line 27-55, col 11 line 57+) the method comprising:

a) determining the dimension of the texture map (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32)

b) converting the texture map to a one dimensional texture map if the dimension of the texture map is determined to be more than one dimensional, the one dimensional texture map having a first number of consecutive data blocks (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32)

c) locating a second number of consecutive memory locations in the texture memory, the first number being equal to the second number (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32)

d) storing the one dimensional texture map in the located memory locations in the texture memory. (See Abstract, Fig 1, Fig 2, col 2 line 35-col 4 line 39, col 5 line 8-32)

Kaneko does not specifically disclose that determining the dimension of the texture map. However, Gossett teaches the claimed invention. (See col 2 line 28-41, col 2 line 66-col 3 line 30, col 10 line 55-col 11 line 59, col 13 line 35-63) The motivation would have been to operate texture mapping processing efficiently. The texture mapping processing can be improved by determining the size of texture data (i.e. three dimensional texture data usually require large capacity processor comparing to one-dimensional texture data) Therefore, it would have been obvious to one skilled in the art to determine the texture data by its dimensional type.

Also, the combination of Kaneko and Gossett do not explicitly disclose that converting the multi-dimensional texture map into a one dimensional texture map. However, Chimoto discloses the way of express the two-dimensional texture data as one-dimensional texture data. (See Fig 3, col 2 line 50-55, col 5 line 12-39, col 6 line 67-col 7 line 39, col 7 line 55+) The motivation would have been to operate texturing, without extensive using of texture memory. Therefore, it would have been obvious to one skilled in the art to incorporate the teaching of Chimoto into the teaching of Kaneko.

Regarding claim 27, refer to the discussion for the claim 26 hereinabove, Chimoto discloses that step b) comprising:

B1) defining a plurality of data blocks within the texture map (See Fig 3, col 2 line 50-55, col 5 line 12-39, col 6 line 67-col 7 line 39, col 7 line 55+)

B2) assigning a sequence number to each of the data blocks, the sequence numbers being consecutive numbers. (See Fig 3, col 2 line 50-55, col 5 line 12-39, col 6 line 67-col 7 line 39, col 7 line 55+)

Regarding claim 28, refer to the discussion for the claim 26 hereinabove, Chimoto discloses that step d) comprising:

D1) consecutively storing each consecutive data block of the one dimensional texture map in the located memory locations. (See Fig 3, col 2 line 50-55, col 5 line 12-39, col 6 line 67-col 7 line 39, col 7 line 55+)

Regarding claims 29-31, claims 29-31 are similar in scope to the claims 26-28, and thus the rejections to claims 26-28 hereinabove are also applicable to claims 29-31.

Regarding claims 32-34, claims 32-34 are similar in scope to the claims 26-28, and thus the rejections to claims 26-28 hereinabove are also applicable to claims 32-34.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6606 (for informal or draft communications, please label "PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Chung whose telephone number is (703) 306-3419. He can normally be reached Monday-Thursday and alternate Fridays from 7:30am - 5:00pm. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Michael, Razavi can be reached on (703) 305-4713. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

djc
March 20, 2001

MATTHEW LUU
PRIMARY EXAMINER